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APPLICATION NO. FILING DATE		FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,510 10/23/2003		Yuan Liang Yu	MR2349-790/DIV	6054
4586	7590 12/29/2005		EXAM	INER
	RG, KLEIN & LEE OTT CENTER DRIVE-SU	AFTERGUT, JEFF H		
	CITY, MD 21043	one ioi	ART UNIT	PAPER NUMBER
	,		1733	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary    The MAILING DATE of this communication appears on the cover sheet with the correspondence address   Period for Reply			Applicatio	an No	Applicant(s)	
### And Unit   Jeff H. Aftergut   Jeff H. Aftergut						
Jeff H. Aftergut   1733	Office Action St					
The MAILING DATE of this communication appears on the cover sheet with the correspondence address — Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ② MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.  Extensions for many be available under the provision of 37 FR1 1136(a) in no event, however, may a reply be timely field after 50 kg) add/21155 from the mailing date of this communication of 37 FR1 1136(b) in no event, however, may a reply be timely field after 50 kg) add/21155 from the mailing date of this communication.  Failuble to reply within the set or excelled period for rings will by estates, cause the application become ABM/000ERG 691 s.C. § 1333.  Any reply received by the Office has than three months after the mailing date of this communication, even if timely field, may reduce any exeme planetium empleyament. See 37 CFR 1.78(b).  Status  1) Responsive to communication (s) filled on	Omoc Addon of	y				
Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the protections of 37 CPR 1.130(a). In no went, however, may a raply be finish filled.  - Entensions of time may be available under the protections of 37 CPR 1.130(a). In no went, however, may a raply be finish filled.  - If NO prend for may in specified above, the availants and studies protection and control protection to be corrected protection by the Control of the protection of the communication.  - Fallure to reply which in the sit or extended period for reply will, by stables, cause the application to become AlaNDONED (35 U.S.C. § 133).  - Any pay's revealed by the Official or than three months after the mailing date of this communication.  - Fallure to reply which the sit or extended period for reply will, by stables, cause the application to become AlaNDONED (35 U.S.C. § 133).  - Any pay's revealed by the Official start than three months after the mailing date of this communication.  - Fallure to reply which the sit of the communication of the communication.  - Fallure to reply which the sit of the communication of the communication.  - Fallure to reply which the sit of the communication of the communication of the communication.  - Fallure to reply the time of the communication of the communication.  - Fallure to reply the time of the communication of the communication.  - Fallure to reply the time of the communication of the communication.  - Application of Claims  - Application of the communication of the communication.  - Application Papers  - Claim(s)	The MAILING DATE of	this communication at				
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.  Extendence of tem may be available under the provisions of 37 CFR 1.13(a). In no event, however, may a reply be timely filled after 5X (8) MONTHS from the mailing date of this communication.  If NO period to reply is spacified above, the mainimus tellutory peod will apply and will explicit SX (8) LONTHS from the mailing date of this communication.  If NO period to reply is spacified above, the mainimus tellutory peod will apply and will explicit SX (8) LONTHS from the mailing date of this communication. Any reply received by the Office later than throe months after the mailing date of this communication, even if timely filled, may reduce any extend gates that may reduce any extend gates that the space of the communication of the	Period for Reply	ano communication ap	ppearo en are	over once mar me		
1) Responsive to communication(s) filed on  2a) This action is FINAL. 2b) This action is non-final.  3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.  Disposition of Claims  4) Claim(s) 5-8 is/are pending in the application.  4a) Of the above claim(s) is/are withdrawn from consideration.  5) Claim(s) is/are allowed.  6) Claim(s) is/are allowed.  6) Claim(s) is/are allowed.  7) Claim(s) is/are objected to.  8) Claim(s) are subject to restriction and/or election requirement.  Application Papers  9) The specification is objected to by the Examiner.  10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner.  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a), Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.  Priority under 35 U.S.C. § 119  12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some * c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.	WHICHEVER IS LONGER, F - Extensions of time may be available ur after SIX (6) MONTHS from the mailing - If NO period for reply is specified abov - Failure to reply within the set or extend Any reply received by the Office later to	ROM THE MAILING I der the provisions of 37 CFR 1 g date of this communication. e, the maximum statutory period ded period for reply will, by statu- nan three months after the maili	DATE OF TH I.136(a). In no eve d will apply and wil ute, cause the appli	IIS COMMUNICATIO int, however, may a reply be ti Il expire SIX (6) MONTHS fron ication to become ABANDONI	N. imely filed in the mailing date of this comm ED (35 U.S.C. § 133).	
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## Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 2. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of any one of Macfee, Jr. et al, Krueger or Ford further taken with Landrock (Processing Handbook on Surface Preparation for Adhesive Bonding) and Vargas et al.

The admitted prior art suggested that it was known at the time the invention was made to attach a nut to a plate wherein the substrate the nut was being attached to was a metal surface. The attachment operation was performed with either a welding operation or a brazing process. The prior art failed to teach that those skilled in the art would have incorporated an adhesive to join the nut to the plate.

However, it was well known as evidenced by any one of Macfee, Jr. et al, Krueger or Ford to incorporate an adhesive to join a nut to a plate. More specifically, the references suggested that one skilled in the art would have known to incorporate a double sided pressure sensitive adhesive tape between a nut and/or nut plate and a surface it was intended to be bound to. More specifically, Macfee et al suggested that an adhesive layer 12 was a double sided pressure sensitive tape which was used to secure the nut plate to the substrate. Krueger suggested that it was known to secure a flanged nut 24 onto a surface of another substrate with the use of a foam layer 3 which

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included a coating of pressure sensitive adhesive thereon on each side. The reference to Ford suggested that it was known at the time the invention was made to utilize an adhesive 30 on a nut plate to secure the plate to a substrate wherein the adhesive 30was a double sided pressure sensitive adhesive material. The references all envisioned that one skilled in the art would have utilized an adhesive material to join a nut to a substrate. The references failed to teach that one would have prepared the surfaces for bonding which included removal of scum from the surfaces of the metal prior to bonding and/or anodizing the metal surfaces. Additionally, while the references each suggested that those versed in the art would have been aware of the use of pressure sensitive adhesive materials for joining the nut to the substrate, the references did not envision a heat treatment on the surface to join the materials together.

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The reference to Landrock suggested that those skilled in the art of adhesive bonding would have understood to remove scum from the surface of the aluminum prior to the bonding operation wherein the pretreatments performed upon the metal prior to the bonding operation included the use of a grit blasting operation, see pages 14-20 of the document where various sanding operations were performed (note that grit blasting and/or hand abrading the surface were known polishing operations). Certainly one skilled in the art would have understood that both the metal of the nut and the metal of the substrate plate would have been pretreated with the polishing operation in order to ensure that the finished assembly formed a good bond. The references nonetheless failed to teach that those skilled in the art would have incorporated a step of heating to

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cure the adhesive as the adhesive employed in the operations included pressure sensitive adhesives.

However, it was known at the time the invention was made to employ a double sided adhesive which incorporated a structural thermosetting adhesive therein wherein one initially assembled the layers together with the pressure sensitive adhesive of the double sided adhesive followed by a heat treatment in order to cure the structural adhesive therein in order to provide a stronger more secure joint between the two elements being adhered together as suggested by Vargas et al. More specifically, the reference suggested that those versed in the art would have understood that structural adhesives which were cured with heat (thermosetting adhesives) did not have good tack initially and therefore one skilled in the art would have provided a double sided tape with a coating of pressure sensitive adhesive on either side of the core of thermosetting material. It would have been understood that the use of the structural adhesive would have provided a superior bond once the material was cured. Note that in Vargas the adhesive material was cured with the application of heat. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the techniques of Vargas et al for the pressure sensitive adhesive tape employed in the processing of joining a nut to a plate as suggested would have been useful by any one of Macfee, Jr. et al, Krueger or Ford as the adhesive provided a superior bond subsequent to cure of the structural adhesive wherein prior to the bonding operation one skilled in the art would have incorporated a step of pretreating the surfaces prior to the joining with the adhesive (as such would have promoted a stronger bond) as

suggested by Landrock in the process of attaching a nut to a plate as taught by the admitted prior art.

With regard to claims 6 and 7, note that the reference to Landrock suggested the identified polishing operation prior to bonding with aluminum surfaces. Regarding claim 8, while Vargas did not identify the specific curing treatment, the temperature was a function of the adhesive material selected for the operation and would have therefore been determined based upon the same as a result effective variable. One skilled in the art would have been expected to determine the optimum curing temperature through routine experimentation.

## Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hutter et al suggested that those skilled in the art would have utilized a curable adhesive to join a nut plate to a substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:15-345 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Primary Examiner Art Unit 1733

JHA

December 23, 2005